Consumer Fact Sheet on Trichloroethylene (TCE)

Q1. What is trichloroethylene (TCE)?

TCE is a volatile organic compound (VOC) that is produced or imported into the United States, with use estimated to be around 250 million pounds per year. It is a clear, colorless liquid that has a sweet odor and evaporates quickly. TCE is a toxic chemical with human health concerns.

Q2. How is it used?

The majority (about 84 percent) of TCE is used in a closed system as an intermediate chemical for manufacturing refrigerant chemicals. Much of the remainder (about 15 percent) is used as a solvent for metals degreasing, leaving a small percentage to account for other uses, including use in consumer products.

Q3. What uses of TCE did EPA evaluate?

EPA’s final risk assessment evaluated health risks to consumers and workers using TCE as a degreaser, to consumers using it as a protective coating to finish prints or artwork, and to dry cleaners' workers using it to remove stains.

Q4. What are the potential risks to people?

This risk assessment evaluated human health risks to consumers and workers, including bystanders, from inhalation exposures. Single (acute) or short-term exposure can potentially affect the developing fetus. High acute concentrations of TCE vapors can irritate the respiratory system and skin and induce central nervous system effects such as light-headedness, drowsiness, and headaches. Repeated (chronic) or prolonged exposure to TCE has been associated with effects in the liver, kidneys, immune system, central nervous system. EPA has concerns for effects in the developing fetus from both acute and chronic exposure. TCE is carcinogenic to humans by all routes of exposure.

Q5. Are there TCE products available to consumers?

The vast majority of TCE use is in commercial or manufacturing facilities and sold through industrial supply chains. While not widely marketed to consumers, there are products containing TCE that can be purchased by consumers.

Q6. Are there specific names of products that contain TCE?

Product names and ingredients change. Searching the Internet using the terms “TCE” and “degreaser” results in a number of TCE-containing products.

Q7. How do I know if TCE is an ingredient in a product?

In general, labels identify product ingredients so look at them carefully, or consult the material safety data sheet (MSDS) or the product safety data sheet (PSDS), available from manufacturers. TCE can be referred to as trichlor, trike, tri, and sold under a variety of trade names. It is identified by its Chemical Abstract Number, which is 79-01-6.

Q8. What advice does EPA have for consumers and workers to reduce exposure when TCE is used as a degreaser?

EPA recommends that people using TCE take precautions that can reduce exposures, such as using the product outside or in an extremely well-ventilated area.

Q9. Are there safer chemical alternatives or technologies available to use instead of TCE as a degreaser?

Alternatives can include using solvents in closed loop systems, switching to aqueous cleaners, other mechanical cleaning techniques, or finding and using safer chemicals.

Q10. Are there safer alternatives or other technologies available to use as a spotting agent in dry cleaning?

Recent advances in both technology and garment care have resulted in alternatives to TCE and other dry cleaning solvents. These methods are becoming more widespread in the industry. Your dry cleaner will be able to advise you on whether or not your garments can be successfully cleaned using new cleaning processes.

Q11. Are there health concerns for people who wear garments that were treated with TCE for spot removal?

EPA does not believe that wearing clothes dry cleaned where TCE may have been used as a spotting agent poses a concern.

Q12. What advice does EPA have for workers at dry cleaners to reduce exposure when TCE is used as a spotting agent?

The most effective way to reduce risk from spotting with TCE is to replace TCE with safer chemicals or alternative cleaning approaches which do not use halogenated solvents.

Q13. Are there alternatives to the use of TCE as a protective coating in spray fixatives that are used to finish prints or artwork?

There are a variety of spray fixative protective coatings on the market that do not contain TCE.

Q14. What action is EPA considering taking to address the health risks?

A number of different options exist for mitigating risks from TCE, including transition to safer chemicals and greener processes/technologies, promotion of best practices, and phase out of uses. Implementing these approaches could involve regulatory action, voluntary approaches, or a mixture of both.